

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 79-139

NPDES NO. CA0038334

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF REDWOOD CITY  
SAN MATEO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. The City of Redwood City, hereinafter called the discharger, by application dated September 12, 1978, has applied for renewal of waste discharge requirements and a permit to discharge wastes under the National Pollutant Discharge Elimination System.
2. The discharger presently discharges an annual average of 6.5 million gallons per day (mgd) of municipal and industrial wastewater containing pollutants into a combined outfall force main with final disposal into the deepwater channel of San Francisco Bay, a water of the United States, at a point approximately 3.5 miles southerly from the San Mateo - Hayward Bridge. (Latitude 37 deg., 33 min., 48 sec.; Longitude 122 deg., 12 min., 55 sec.)

The same outfall facilities are used by the Cities of San Carlos and Belmont, and Redwood City General Improvement District No. 1-64 (Redwood Shores). The discharge can affect viable shellfish beds in San Francisco Bay, located near the shoreline of Foster City and between the mouths of Steinberger Slough treatment by single-stage biofiltration and has a design flow of 8.5 mgd.

3. All wastewater generated by the Cities of San Carlos, Belmont, and Redwood City, Redwood City General Improvement District No. 1-64 (Redwood Shores) and Menlo Park Sanitary District will be treated at the new South Bayside System Authority's treatment facilities now under construction.
4. On June 21, 1977, this Board adopted Order No. 77-83, an Enforcement Order for issuance of a time schedule, requiring the discharger to complete construction of new facilities by July 1, 1980, and to achieve full compliance by October 1, 1980. Construction of the South Bayside System Authority's new subregional wastewater treatment facilities has been delayed, primarily because of construction problems encountered at the site of the new plant. Massive excavation slope failures occurred in September 1978 resulting in cessation of construction work and legal conflicts between the Authority, the Contractor, and Consulting Engineers. Construction work resumed last December 1979 but was again disrupted for a period of about three weeks in April 1979.

5. A Water Quality Control Plan for the San Francisco Bay Basin was adopted by the Board on April 8, 1975. The Basin Plan contains water quality objectives for San Francisco Bay.
6. The beneficial uses of San Francisco Bay are:
  - a. Recreation
  - b. Fish migration and habitat
  - c. Habitat and nesting for waterfowl and migratory birds
  - d. Industrial water supply
  - e. Esthetic enjoyment
  - f. Navigation
  - g. Shellfish propagation and harvesting for human consumption
7. This project is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
8. The discharge is presently governed by Waste Discharge Requirements, Order Nos. 453, 67-54, and 74-196, and its amendments, Order Nos. 76-115, 77-82 and 77-101, and Order No. 77-83, and Enforcement Order for Issuance of a Time Schedule.
9. The discharger and interested agencies and persons have been notified of the Board's intent to revise requirements for the existing discharge and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations.
10. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provision of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the discharger shall comply with the following:

A. Prohibitions

1. Discharge at any point at which the wastewater does not receive an initial dilution of at least 10:1 is prohibited.
2. There shall be no bypass or overflow of untreated wastewater to waters of the State either at the treatment plant or from the collection system.
3. The average dry weather flow shall not exceed 8.5 mgd. Average shall be determined over three consecutive months each year.

B. Effluent Limitations

1. The discharge of an effluent into the combined outfall containing constituents in excess of the following limits is prohibited:

Constituent	Units	30-Day Average	7-Day Average	Maximum Daily	Instantaneous Maximum
a. Settleable matter*	ml/l/hr	0.1	--	--	0.2
b. BOD*	mg/l	10	15	20	--
	lbs/day	971	--	1940	--
	kg/day	440	--	880	--
c. Suspended Solids*	mg/l	8	12	16	--
	lbs/day	777	--	1550	--
	kg/day	352	--	705	--
d. Grease & Oil	mg/l	10	--	20	--
	lbs/day	971	--	1940	--
	kg/day	440	--	880	--
e. Chlorine Residual**	mg/l	--	--	--	0.0
f. Turbidity	JTU	10	--	20	--

\*See interim effluent limitation B.2.

\*\*This requirement shall be waived when the combined effluent from the Cities of San Carlos, Belmont and Redwood City has a chlorine residual concentration of 0.0 mg/l (Instantaneous Maximum) at any point within the combined outfall.

2. The following interim effluent limitations will apply:

- a. Settleable Solids  
Any grab sample 1.0 ml/l-hr, maximum

6 hour composite samples in proportion to rate of flow:  
0.5 ml/l-hr maximum.

- b. The arithmetic mean of values for BOD and Suspended Solids in effluent samples collected in a period of 30 consecutive days shall not exceed 50 percent of the arithmetic mean of respective values for influent samples collected at approximately the same times during the same period, (i.e., 50 percent removal).

3. The discharge shall not have pH of less than 6.0 nor greater than 9.0.

4. In any representative set of samples the waste as discharged shall meet the following limit of quality:

#### TOXICITY:

The survival of test fishes in 96-hour bioassays of the effluent shall be a 90 percentile value of not less than 50 percent survival. Exceptions to this limitation may be granted and revised toxicity requirements established by the Regional Board, pursuant to public hearing, if the discharger can demonstrate to the satisfaction of the Board that the following conditions are met:

1. The waste is discharged through a deepwater outfall which achieves rapid and high initial dilution and that the waste is rapidly rendered non-acutely toxic upon discharge, and
2. The toxicants in the waste are nonconservative constituents which are rapidly decayed in the receiving water; or the toxicants in the waste are conservative constituents for which water quality objectives have been established. The Regional Board will, in such cases, establish effluent mass emission rates for such constituents.
5. Representative samples of the effluent shall not exceed the following limits more than the percentage of time indicated:<sup>1/</sup>

<u>Constituent</u>	<u>Unit of Measurement</u>	<u>50% of time</u>	<u>10% of time</u>
Arsenic	mg/l (kg/day)	0.01 (0.32)	0.02 (0.64)
Cadmium	mg/l (kg/day)	0.02 (0.64)	0.03 (0.97)
Total Chromium	mg/l (kg/day)	0.005 (0.161)	0.01 (0.32)
Copper	mg/l (kg/day)	0.2 (6.4)	0.3 (9.7)
Lead	mg/l (kg/day)	0.1 (3.2)	0.2 (6.4)
Mercury	mg/l (kg/day)	0.001 (0.032)	0.002 (0.064)
Nickel	mg/l (kg/day)	0.1 (3.2)	0.2 (6.4)
Silver	mg/l (kg/day)	0.02 (0.64)	0.04 (1.28)
Zinc	mg/l (kg/day)	0.3 (9.7)	0.5 (16.1)
Cyanide	mg/l (kg/day)	0.1 (3.2)	0.2 (6.4)
Phenolic Compounds	mg/l (kg/day)	0.5 (16.1)	1.0 (32.2)
Total Identifiable Chlorinated Hydrocarbons	mg/l (kg/day) <sup>2/</sup>	0.002 (0.064)	0.004 (0.128)

<sup>1/</sup> These limits are intended to be achieved through secondary treatment, source control and application of pretreatment standards.

<sup>2/</sup> Total Identifiable Chlorinated Hydrocarbons shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, polychlorinated biphenyls, and other identifiable chlorinated hydrocarbons.

6. The arithmetic mean of the biochemical oxygen demand (5-day, 20°C) and suspended solids values, by weight, for effluent samples collected in a period of 30 consecutive calendar days shall not exceed 15 percent of the arithmetic mean of the respective values, by weight, for influent samples collected at approximately the same times during the same period (85 percent removal).
7. At some point in the treatment process the waste shall not exceed a median MPN of the coliform organisms of 2.2/100 ml as determined from the results of the previous consecutive seven days for which analyses have been completed.

#### C. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place.

- a. Floating, suspended, or deposited macroscopic particulate matter or foam;
  - b. Bottom deposits or aquatic growths;
  - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
  - d. Visible, floating, suspended or deposited oil or other products of petroleum origin;
  - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
- a. Dissolved oxygen      5.0 mg/l minimum. Annual median - 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
  - b. Dissolved sulfide      0.1 mg/l maximum
  - c. pH      Variation from natural ambient pH by more than 0.2 pH units.
  - d. Un-ionized ammonia      0.025 mg/l as N Annual Median  
0.4 mg/l as N Maximum
3. The following interim receiving water limitations shall apply:
- At any place within one foot of the surface of the receiving water the discharge shall not cause a bacterial quality in excess of those limits prescribed in Section 7958, Title 17 of the California Administrative Code.
4. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

D. Provisions

1. The requirements prescribed by this Order supersede the requirements prescribed by Order Nos. 74-196, 76-115, 77-82, 77-83, and 77-101, adopted on December 17, 1974, November 16, 1976, June 21, 1977, June 21, 1977, and July 19, 1977, respectively. Order Nos. 74-196, 76-115, 77-82 and 77-83 are hereby rescinded.
2. The discharger shall comply with the following time schedule to assure compliance with the specifications of this Order:
  - a. Compliance with Effluent Limitations B.1.a, B.1.c, B.1.d, B.1.f, B.4, B.5, B.6, B.7, and Receiving Water Limitation C.2.d:

<u>Task</u>	<u>Completion Date</u>	<u>Report of Compliance Due</u>
Status Report		July 1, 1980
Complete Construction (Beneficial use of facilities)	April 1, 1981	April 15, 1981
Achieve Full Compliance	July 1, 1981	July 15, 1981
  - b. The discharger shall comply with all other effluent and receiving water limitations, prohibitions, and provisions of this Order immediately upon adoption.
3. The discharger shall comply with the Self-Monitoring Reporting Program as ordered by the Executive Officer.
4. The discharger may elect to document compliance with the interim coliform receiving water limitation exclusively in the effluent. If such election is made, and the Board notified in writing, a violation of the coliform requirement in the effluent shall constitute a violation of the coliform receiving water limitation.
5. The discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements" dated April 1977.
6. This permit shall be modified, or alternatively revoked and reissued as soon as practicable to incorporate an approved publicly owned treatment work (POTW) pretreatment program or a compliance schedule for the development of a POTW pretreatment program as required under Section 402(b)(8) of the Clean Water Act and implementing regulations or by the requirements of the approved state pretreatment program as appropriate.
7. The discharger shall review and update annually its contingency plan as required by Regional Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

8. This Order expires July 1, 1981. The discharger must file a Report of Waste Discharge not later than 180 days in advance of such date as an application for issuance of new waste discharge requirements.
9. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or Amendments thereto, and shall take effect at the end of ten days from date of hearing provided the Regional Administrator of the U. S. Environmental Protection Agency has no objections.

I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 16, 1979.

FRED H. DIERKER  
Executive Officer

Attachments:

Standard Provisions & Reporting  
Requirements 4/77  
Resolution 74-10  
Self-Monitoring Program

by ROGER B. JAMES  
Acting Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM  
FOR

CITY OF REDWOOD CITY

SAN MATEO COUNTY

NPDES NO. CA 0038334

ORDER NO. 79-139

CONSISTS OF

PART A

AND

PART B



PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT AND INTAKE

<u>Station</u>	<u>Description</u>
A-001	At any point in the treatment facilities headworks at which all waste tributary to the system is present and preceding any phase of treatment.

B. EFFLUENT

<u>Station</u>	<u>Description</u>
E-001	At any point in the plant outfall from the treatment facilities between the point of discharge into the combined outfall and the point at which all waste from the plant is present. (May be the same as E-001-D)
E-001-D	At any point in the disinfection facilities for Waste E-001, at which point adequate contact with the disinfectant is assured.
E-002	At any point in the combined outfall from the treatment facilities between the point of discharge into San Francisco Bay and the point at which all waste tributary to that outfall is present.

C. RECEIVING WATERS

All C Stations shall be sampled during the period 1 hour preceding to 1 hour following low slack water. During the period preceding low slack water, samples will be collected commencing at the geometric center of the diffuser and at 100 yds, 200 yds, 300 yds, 500 yds, and 1000 yds along a bearing of 325° True N from the geometric center of the diffuser. During the period following low slack water, samples will be collected commencing at the geometric center of the diffuser and at 100 yards, 200 yards, 300 yards, 500 yards, and 1000 yards along a bearing of 145° True N from the geometric center of the diffuser.

<u>Station</u>	<u>Description</u>
C-R	At a point in San Francisco Bay, located in the main ship channel not closer than 3,000-feet easterly of the geometric center of the outfall.
C-1	At a point 100 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-2	At a point 200 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.

<u>Station</u>	<u>Description</u>
C-3	At a point 300 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-4	At a point 500 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-5	At a point 1000 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-6	At a point 100 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-7	At a point 200 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-8	At a point 300 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-9	At a point 500 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-10	At a point 1000 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-11	At a point at the geometric center of the outfall diffuser.

D. LAND OBSERVATIONS

<u>Station</u>	<u>Description</u>
P-1 thru p-'n'	Located at the corners and midpoints of the perimeter fenceline surrounding the treatment facilities. (A sketch showing the locations of these stations will accompany each report.)

E. SEDIMENTS

<u>Station</u>	<u>Description</u>
B-0-1	At a point in San Francisco Bay located on line with the outfall and fifty (50) feet bayward from the end of the outfall.
B-1	At a point in San Francisco Bay located two hundred (200) feet perpendicular and south at the end of the outfall.
B-2	At a point in San Francisco Bay located one hundred (100) feet perpendicular to and south of the outfall, two hundred (200) feet landward from the end of the outfall.

<u>Station</u>	<u>Description</u>
B-3	At a point in San Francisco Bay located two hundred (200) feet perpendicular to and south of the outfall, and two hundred (200) feet landward from the end of the outfall.
B-4	At a point in San Francisco Bay located two hundred (200) feet perpendicular to and south of the outfall, and four hundred (400) feet landward from the end of the outfall.
B-RS	At a point in San Francisco Bay located approximately fifteen hundred (1500) feet southeasterly of the point of discharge and at the interface of the deepwater channel and the shallow water edge.

F. OVERFLOWS AND BYPASSES

<u>Station</u>	<u>Description</u>
OV-1 thru OV-'n'	Bypass or overflows from manholes, pump stations or collection system.  Note: Initial SMP report to include map and description of each known bypass or overflow location.

Reporting - Shall be submitted monthly and include date, time, and period of each overflow or bypass.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given as Table I.

I, Fred H. Dierker, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 79-139.
2. Does not include the following paragraphs of Part A:  
  
C-3, C-5c, and C-5d
3. Is effective on the date shown below.

4. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

FRED H. DIERKER  
Executive Officer

Attachment:  
Table I

by ROGER B. JAMES  
Acting Executive Officer

Effective Date \_\_\_\_\_

**TABLE I**  
**SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS**

Sampling Station	A-001	E-001			E-001D			E-002			All C Sta	All B Sta	All P Sta
TYPE OF SAMPLE	C-24	G	C-24	Cont	G	C-24	Cont	G	C-24	Cont	G	BS	O
Flow Rate (mgd)	D			D						D			
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	5/W		(2) (3) 5/W										
Chlorine Residual & Dosage (mg/l & kg/day)					2H	or	Cont	2H	or	Cont			
Settleable Matter (ml/1-hr. & cu. ft./day)		(4) D	(5) D					D					
Total Suspended Matter (mg/l & kg/day)	5/W		(3) 5/W						D				
Oil & Grease (mg/l & kg/day)	(10) 2W		(10) (6) 2W										
Coliform (Total) (MPN/100 ml) per req't					(7) 3/W						(8) M		
Fish Toxicity, 96-hr. TL <sub>50</sub> % Survival in undiluted waste						(9) M			(9) 2W				
Ammonia Nitrogen & Total Ammonia (mg/l & kg/day)			(11) W										
Nitrate Nitrogen (mg/l & kg/day)													
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity Nephelometric (Jackson Turbidity Units)			(12) 5/W						W		(13) 2M		
pH (units)		D						D			(13) 2M		
Dissolved Oxygen (mg/l and % Saturation)		D						D			(13) 2M (14)		
Temperature (°C)		D						D			(13) 2M		
Apparent Color (color units)			2/M						W		(13) 2M		
Secchi Disc (inches)											(13) 2M		
Sulfides (if DO < 5.0 mg/l) Total & Dissolved (mg/l)		2/W						D			2M		
Arsenic (mg/l & kg/day)			(9) 3M										
Cadmium (mg/l & kg/day)			(9) 3M										
Chromium, Total (mg/l & kg/day)			(9) 3M										
Copper (mg/l & kg/day)			(9) 3M										
Cyanide (mg/l & kg/day)			(9) 3M										
Silver (mg/l & kg/day)			(9) 3M										
Lead (mg/l & kg/day)			(9) 3M										

TABLE I (continued)  
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001	E-001			E-001D			E-002			All C Sta	All B Sta	All P Sta	All OV Sta
TYPE OF SAMPLE	C-24	G	C-24	Cont	G	C-24	Cont	G	C-24	Cont	G	BS	O	O
Mercury (mg/l & kg/day)			(9) 3M											
Nickel (mg/l & kg/day)			(9) 3M											
Zinc (mg/l & kg/day)			(9) 3M											
PHENOLIC COMPOUNDS (mg/l & kg/day)			(9) 3M											
All Applicable Standard Observations		D						D			M		2/W	E
Bottom Sediment Analyses and Observations												y (15)		
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)			(9) 3M											
Un-Ionized Ammonia As N (mg/l)											(16) 3M			

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample  
 C-24 = composite sample - 24-hour  
 C-X = composite sample - X hours  
       (used when discharge does not  
       continue for 24-hour period)  
 Cont = continuous sampling  
  
 BS = bottom sediment sample  
 O = observation

TYPES OF STATIONS

I = intake and/or water supply stations  
 A = treatment facility influent stations  
 E = waste effluent stations  
 C = receiving water stations  
 P = treatment facilities perimeter stations  
 L = basin and/or pond levee stations  
 B = bottom sediment stations

FREQUENCY OF SAMPLING

E = each occurrence	3/W = 3 days per week	2H = every 2 hours
D = once each day	5/W = 5 days per week	2W = every 2 weeks
W = once each week	2/M = 2 days per month	3M = every 3 months
M = once each month		Cont = continuous
Y = once each year		

#### FOOTNOTES

- (1) During any day when bypassing occurs from any treatment unit(s) in the plant, the monitoring program for the effluent shall include the following in addition to the above schedule for sampling, measurement and analyses:
  - (a) Composite sample for BOD, Total Suspended solids, oil and grease (Influent and Effluent).
  - (b) Grab sample for coliform (Total and Fecal), Settleable matter, and chlorine residual (continuous or every two hours).
  - (c) Continuous monitoring of flow.
- (2) Dechlorinate samples before seeding.
- (3) Report 30-day average in mg/l, kg/day, and percent removal; as well as the observed values each month.
- (4) Report the average of all values collected, as well as the observed values each month.
- (5) 6-hour composite sample.
- (6) Report the 30-day average in mg/l and kg/day, as well as the observed values each month.
- (7) Report the running median of 7 consecutive samples for total coliform.
- (8) Collect receiving water coliform samples on a day when such samples are collected at Station E-001-D.
- (9) Report the median of the most recent three samples, the 90th percentile of the most recent ten samples, and the observed values of the most recent ten samples in each monthly report.
- (10) Samples taken for oil and grease analysis at sample station(s) A-001 and E-001 shall be grab samples, at a frequency of every two weeks.

Oil and grease sampling shall consist of 3 grab samples taken at 8-hour intervals during the sampling day, with each grab being collected in a glass container and analyzed separately. Results shall be expressed as a weighted average of the 3 values, based upon the instantaneous flow rates occurring at the time of each grab sample.

If the plant is not staffed 24 hours per day or if the discharge does not occur continuously, then the three grab samples may be taken at approximately equal intervals during the period that the plant is staffed or during the period that discharge is made.

- (11) Total Ammonia only.
- (12) Report the 30-day average value as well as the observed values.

- (13) Report all observed values and the difference obtained by subtracting the observed value at Station "C-R" from that for each of the other "C-" Stations on the same day.
- (14) Report the annual median % saturation value for the prior 12 months in each monthly report, for each "C-" Station.
- (15) Perform the bottom sediment sampling in September of each year.